

# Notice of Allowability

Application No.

10/075,545

Examiner

Shelly A Chase

Applicant(s)

SHIN, SUNG-HYUK

Art Unit

2133

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 2-14-2002.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 14 February 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### DETAILED ACTION

1. Claims 1 to 13 are presented for examination.

#### ***Allowable Subject Matter***

2. Claims 1 to 13 are allowed.
3. The following is an examiner's statement of reasons for allowance: the instant invention is directed to turbo code interleaving utilizing a hybrid s-random interleaver.

The prior art made of record teaches turbo code interleaving. For instance, Eroz et al. (USP 6334197) teaches a method and an apparatus for optimization of turbo code interleaving wherein interleaving is performed for various code lengths. Eroz also teaches a turbo decoding method wherein the recursive decoders receive input from a common source.

Olsen (*A hybrid interleaving scheme that enables packet switching on multiple-access radio communication channels*, IEEE) discloses a hybrid interleaving method that is the concatenation of the block type interleaving and convolutional type interleaving, and Wang et al. (*ON the performance of turbo codes*, IEEE) discloses turbo encoding and decoding utilizing an interleaving that received a systematic sequence outputting an interleaved sequence to a second encoder.

However, the prior art made of record is different from the instant invention in that the prior art made of record fails to teach or fairly suggest or render obvious turbo code encoding utilizing a hybrid S-random interleaver. Specifically, the prior art made of

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record taken alone or in combination fails to teach or fairly suggest or render obvious a turbo code encoder for encoding at least one input set of  $N$  ordered permutation integers  $I(k)$ , where  $K=1$  to  $N$ , comprising: a hybrid  $S$ -random interleaver for receiving said input bit sequence to provide a reordered input bit set, where  $S$  is an arbitrary predetermined value as claimed in the independent claims 1 and 7. Claims 2 to 6 and 8 to 12 are directly or indirectly dependent on claims 1 and 7 thus; are allowable over the prior art made of record.

As per claim 13, the prior art made of record fails to teach or fairly suggest or render obvious a turbo code encoder for encoding at least one input set of  $N$  ordered permutation integers  $I(k)$ , where  $K=1$  to  $N$ , comprising: an interleaver for receiving input bit set, reordering the received data is not evenly divisible by  $L$ .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

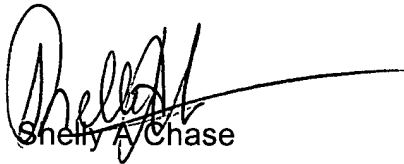
### **Conclusion**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelly A Chase whose telephone number is 703-308-7246. The examiner can normally be reached on Mon-Thur from 8:00 am to 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shelly A. Chase